

TRANSLATION

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

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| Applicant's or agent's file reference P TM81182 PC-BU | FOR FURTHER ACTION | | See Form PCT/IPEA/416 |
| International application No. PCT/DE2004/002710 | International filing date (day/month/year) 10.12.2004 | Priority date (day/month/year) 11.12.2003 | |
| International Patent Classification (IPC) or national classification and IPC B60R16/02 | | | |
| Applicant CONTI TEMIC MICROELECTRONIC GMBH | | | |

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| <p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of <u>7</u> sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input checked="" type="checkbox"/> (<i>sent to the applicant and to the International Bureau</i>) a total of <u>5</u> sheets, as follows:</p> <p><input checked="" type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (<i>sent to the International Bureau only</i>) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p> |
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| <p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the report</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input checked="" type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input type="checkbox"/> Box No. VIII Certain observations on the international application</p> |
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|---|-----------------------------------|
| Date of submission of the demand | Date of completion of this report |
| Name and mailing address of the IPEA/EP | Authorized officer |
| Facsimile No. | Telephone No. |

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/DE2004/002710

Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

This report is based on translations from the original language into the following language _____, which is the language of a translation furnished for the purposes of:

 - international search (Rule 12.3 and 23.1(b))
 - publication of the international application (Rule 12.4)
 - international preliminary examination (Rule 55.2 and/or 55.3)
2. With regard to the **elements** of the international application, this report is based on (*replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report*):

the international application as originally filed/furnished

the description:

pages 2-9 as originally filed/furnished 14.05.2005 with letter
 pages* 1, 1a received by this Authority on of 12.05.2005

pages* _____ received by this Authority on _____

the claims:

nos. _____ as originally filed/furnished

nos.* _____ as amended (together with any statement) under Article 19 14.05.2005 with letter
 nos.* 1-12 received by this Authority on of 12.05.2005

nos.* _____ received by this Authority on _____

the drawings:

sheets 1/7-7/7 as originally filed/furnished

sheets* _____ received by this Authority on _____

sheets* _____ received by this Authority on _____

a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.
3. The amendments have resulted in the cancellation of:

the description, pages _____

the claims, nos. _____

the drawings, sheets/figs _____

the sequence listing (*specify*): _____

any table(s) related to sequence listing (*specify*): _____
4. This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

the description, pages _____

the claims, nos. _____

the drawings, sheets/figs _____

the sequence listing (*specify*): _____

any table(s) related to sequence listing (*specify*): _____

* If item 4 applies, some or all of those sheets may be marked "superseded."

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/DE2004/002710

Box No. V **Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

| | | | |
|-------------------------------|--------|------|-----|
| Novelty (N) | Claims | 1–12 | YES |
| | Claims | | NO |
| Inventive step (IS) | Claims | 1–12 | YES |
| | Claims | | NO |
| Industrial applicability (IA) | Claims | 1–12 | YES |
| | Claims | | NO |

2. Citations and explanations (Rule 70.7)

1 Prior art documents

This report makes reference to the following documents:

D1: EP-A-0 982 194 (VOLKSWAGEN AKTIENGESELLSCHAFT) 1 March 2000 (2000-03-01)

D2: US-A-4 176 250 (BERGLIND, BRADFORD L) 27 November 1979 (1979-11-27)

D3: US-A-5 886 419 (SAITO ET AL) 23 March 1999 (1999-03-23)

D4: DE 40 06 124 A1 (MERCEDES-BENZ AKTIENGESELLSCHAFT, 7000 STUTTGART, DE) 5 September 1991 (1991-09-05)

2 Claims 1 to 12

2.1 Claim 1, Novelty

Document D1 is considered the prior art closest to the subject matter of claim 1 and discloses (the references between parentheses refer to that document; see paragraphs [0009] to [0028] and the

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/DE2004/002710

Box No. V **Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

drawing) a method for the pulse width-modulated control of a plurality of load elements, the load elements each being controlled in a time staggered manner with respect to one another.

The subject matter of claim 1 thus differs from the known method in that the load elements are controlled in a phase staggered manner by a common control unit with a common system clock, a start value and an end value being defined for each load element, the start values for the load elements being mutually different, the end values for the load elements being determined according to the pulse-pause ratio and each load element being subjected to an electric flow for the period between the respective start and end values.

The subject matter of claim 1 is thus novel (PCT Article 33(2)).

2.2 Claim 1, Inventive step

The present invention can be considered to address the problem of better controlling load elements.

The solution to this problem as proposed in claim 1 of the present application involves an inventive step (PCT Article 33(3)) for the following reasons:

Although the features from the preamble of claim 1 are known at least individually from the prior

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/DE2004/002710

Box No. V **Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

art, the solution as per the features of claim 1 in combination appears to be neither disclosed nor suggested by the prior art.

Said solution clearly results in a reduction in interference in the vehicle electrical system owing to the control of the load elements.

2.3 Dependent claims 2 to 6

Claims 2 to 6 are dependent on claim 1 and therefore likewise meet the PCT requirements for novelty and inventive step (PCT Article 33(2) and (3)).

2.4 Claim 7, directed to a control circuit

2.4.1 Document D1 is considered the prior art closest to the subject matter of claim 7 and discloses at least implicitly a control circuit for implementing the method according to the preamble of claim 1.

The subject matter of claim 7 thus differs from the known circuit by virtue of a common system clock generator and a memory area for each load element, in which are stored the pulse width and the phase position of each load element.

The subject matter of claim 7 is therefore novel (PCT Article 33(2)).

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/DE2004/002710

Box No. V **Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

2.4.2 The present invention can be considered to address the problem of better controlling load elements.

The solution to this problem as proposed in claim 7 of the present application involves an inventive step (PCT Article 33(3)) for the following reasons:

Although the features of a control circuit for implementing the method according to the preamble of claim 1 are known at least individually from the prior art, the solution as per the features of claim 7 in combination appears to be neither disclosed nor suggested by the prior art.

2.5 Dependent claims 8 to 12

Claims 8 to 12 are dependent on claim 7 and therefore likewise meet the PCT requirements for novelty and inventive step (PCT Article 33(2) and (3)).

3 Industrial applicability

The subject matter of claims 1 to 12 also appears to meet the requirements of PCT Article 33(4), since it appears that it can be produced and also used in the field of automotive engineering.

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/DE2004/002710

Box No. VII Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

1 Claims

Claim 7 fails to mention that claim 7 concerns a control circuit for implementing the method according to one of **claims 1 to 6**.